said static pressure in the fluid relative to a pressure acting on said flow vessel from outside.

REMARKS

Receipt of the Office Action of October 2, 2002 is gratefully acknowledged

Claims 1-36 are pending and have been examined and as a result rejected as follows: (1) claims 1-7, 9-15, 19-24, 26-31, 35 and 36 as anticipated under 35 USC 102(b) by Nabity et al; (2) claims 8, 16, 25 and 32 as unpatentable under 35 USC 103(a) over Nabity et al in view of Meijer; and (3) claims 17, 18, 33 and 34 as unpatentable under 35 USC 103(a) over Nabity et al. These rejections are respectfully traversed.

(1)

For a reference to anticipate a claim(s), it must disclose specifically each and every positively recited element in the claim(s), ***In re Bond***, 15 USPQ2d 1566 (Fed. Cir. 1990). Nabity cannot meet this test for anticipation. For example, claim 1 recites, among other things, that the pressure sensor senses "a static pressure in the fluid" and provides "a sensor signal representative of the displacement motions." Nabity only discloses a measuring arrangement (12,14) with a piezoelectric sensor which senses any changes in strain of the flow vessel (20). If the apparatus works in steady-state and under non-disturbed conditions, these changes in strain may correspond, however, with any changes in pressure.

Since pressure pulses within the drawn fluid will be sensed by a piezoelectric sensor (14) the sensor signal does not correspond with a static or an instantaneous pressure within the fluid, but only with changes in pressure. In other words, the sensor (14) as disclosed by Nabity cannot sense directly any static and/or any instantaneous pressure within the fluid and, thus, the measuring arrangement (12,14) cannot directly measure the sample volume from the

sensor signal. Then, in order to correctly measure the instantaneous pressure. The measuring arrangement (12, 14) has to integrate the sensor signal, i.e., by counting pulses in the sensor signal. In addition, this measuring arrangement (12,14) has to monitor all parameters which could affect the "span" and "zero" of the transfer function from pressure pulses to sample volume. Such parameters may be, for instance, suction head or filing level, etc.

In contrast, such parameters used by the present invention to estimate the sample volume to estimate the sample volume or to monitor the current status of the sampler could also derive directly from the sensor signal (see page 19, line 14 to page 20. line 29). This fact produces the realization that the apparatus as set-up according to the present invention provides high accuracy in a very user- comfortable manner. Beyond that, the sensor according to the present invention provides the evaluation electronics with more direct information about instantaneous pumping states. In contrast, the evaluation electronics of Nabily does not and could not derive such condition information from the sensor signal.

From a consideration of the above, one can appreciate that claims 1-7, 9-15, 19-24, 26-31, 35 and 36 cannot be anticipated by Nabily.

(2) - (3)

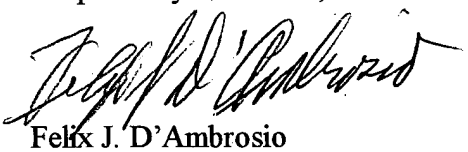
Claims 8, 16 - 18, 25, and 32-34 are in dependent form and depend from independent claims 1, 9, 19 and 26. As such, they depend on their patentability, in part, on the independent claim from which they derive. Then for obviousness under 35USC 103 to apply, the secondary reference, namely Meijer must provide the teaching deficiency of Nabily. From a carefuly consideration of Meijer, it is respectfully submitted that it does not. It does not teach a direct sensing which, as noted above, is lacking in Nabily. Accordingly, even if the combination

of Nabily and Meijer could be made it would not result in the present invention. And certainly, Nabily alone cannot cure itself. It does not have the necessary teaching to render any claim of this invention obvious.

Claims 1-36 have been amended formally only.

In view of the foregoing, reconsideration and re-examination are respectfully requested and claims 1-36 found allowable.

Respectfully submitted,



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MARKED-UP COPY OF AMENDED CLAIMS 1-36

1. (Amended) An apparatus [Apparatus] for generating a fluid flow, said apparatus comprising:

- a displacement pump

-- with at least one flow vessel of deformable lumen, which serves to conduct a fluid,

-- with a pump drive for producing displacement motions of the flow vessel which deform the lumen and cause the fluid flow, and

-- with a support means for holding the flow vessel; and

- a measuring arrangement responsive to the displacement motions performed by the flow vessel,

-- with a pressure sensor [for] sensing a static pressure in the fluid and providing a sensor signal representative of the displacement motions, and

-- with evaluation electronics for the sensor signal.

2. (Amended) The apparatus [Apparatus] as claimed in claim 1, wherein the evaluation electronics are [being] operable to derive from the sensor signal a flow rate estimate representative of an instantaneous volume flow rate of the fluid.

3. (Amended) The apparatus [Apparatus] as claimed in claim 1, wherein the evaluation electronics are [being] operable to derive from the sensor signal a first measurement signal representative of a frequency of the displacement motions.

4. (Amended) The apparatus [Apparatus] as claimed in claim 1, wherein the

evaluation electronics are [being] operable to derive from the sensor signal a volume estimate representative of a totalized volume of fluid delivered.

5. (Amended) The apparatus [Apparatus] as claimed in claim 1, wherein the evaluation electronics are [being] operable to derive from the sensor signal a status signal representative of a current operational status of the displacement pump.

6. (Amended) The apparatus [Apparatus] as claimed in claim 1, wherein the evaluation electronics are [being] operable to derive from the sensor signal a second measurement signal representative of a suction head of the apparatus.

7. (Amended) The apparatus [Apparatus] as claimed in claim 1, wherein the pump drive is a rotary pump drive.

8. (Amended) The apparatus [Apparatus] as claimed in claim 1, wherein the pump drive is a linear pump drive.

9. (Amended) A sampler [with] for taking samples of a fluid, said sampler comprising an apparatus for generating a fluid flow, said apparatus comprising:

- a displacement pump

-- with at least one flow vessel of deformable lumen, which serves to conduct a fluid,

-- with a pump drive for producing displacement motions of the flow vessel which deform the lumen and cause the fluid flow, and

-- with a support means for holding the flow vessel; and

- a measuring arrangement responsive to the displacement motions performed by the flow vessel,

-- with a pressure sensor [for] sensing a static pressure in the fluid and providing a sensor signal representative of the displacement motions, and

-- with evaluation electronics for the sensor signal.

10. (Amended) The sampler [Sampler] as claimed in claim 9, wherein the evaluation electronics are [being] operable to derive from the sensor signal a flow rate estimate representative of an instantaneous volume flow rate of the fluid.

11. (Amended) The sampler [Sampler] as claimed in claim 9, wherein the evaluation electronics are [being] operable to derive from the sensor signal a first measurement signal representative of a frequency of the displacement motions.

12. (Amended) The sampler [Sampler] as claimed in claim 9, wherein the evaluation electronics are [being] operable to derive from the sensor signal a volume estimate representative of a totalized volume of fluid delivered.

13. (Amended) The sampler [Sampler] as claimed in claim 9, wherein the evaluation electronics are [being] operable to derive from the sensor signal a status signal representative of a current operational status of the displacement pump.

14. (Amended) The sampler [Sampler] as claimed in claim 9, wherein the evaluation electronics are [being] operable to derive from the sensor signal a second measurement signal representative of a suction head of the apparatus.

15. (Amended) The sampler [Sampler] as claimed in claim 9, wherein the pump drive is a rotary pump drive.

16. (Amended) The sampler [Sampler] as claimed in claim 9, wherein the pump drive is a linear pump drive.

17. (Amended) The sampler [Sampler] as claimed in claim 9, wherein said sampler is a mobile sampler.

18. (Amended) The sampler [Sampler] as claimed in claim 9, wherein said sampler is a portable sampler.

19. (Amended) The apparatus [Apparatus] for generating a fluid flow, said apparatus comprising:

- a displacement pump

-- with at least one flow vessel of deformable lumen, which serves to conduct a fluid,

-- with a pump drive for producing displacement motions of the flow vessel which deform the lumen and cause the fluid flow, and

-- with a support means for holding the flow vessel, wherein

[---] the flow vessel [being] is compressed by the pump drive in operation temporarily and in sections and forced against the support means such that the support means is elastically strained; and

- a measuring arrangement responsive to the displacement motions performed by the flow vessel,

-- with a strain sensor [for] sensing a strain of the support means and providing a sensor signal representative of the displacement motions performed by the flow vessel, and

-- with evaluation electronics for the sensor signal.

20. (Amended) The apparatus [Apparatus] as claimed in claim 19, wherein the evaluation electronics are [being] operable to derive from the sensor signal a flow rate estimate

representative of an instantaneous volume flow rate of the fluid.

21. (Amended) The apparatus [Apparatus] as claimed in claim 19, wherein the evaluation electronics are [being] operable to derive from the sensor signal a first measurement signal representative of a frequency of the displacement motions.

22. (Amended) The apparatus [Apparatus] as claimed in claim 19, wherein the evaluation electronics are [being] operable to derive from the sensor signal a volume estimate representative of a totalized volume of fluid delivered.

23. (Amended) The apparatus [Apparatus] as claimed in claim 19, wherein the evaluation electronics are [being] operable to derive from the sensor signal a status signal representative of a current operational status of the displacement pump.

24. (Amended) The apparatus [Apparatus] as claimed in claim 19, wherein the pump drive is a rotary pump drive.

25. (Amended) The apparatus [Apparatus] as claimed in claim 19, wherein the pump drive is a linear pump drive.

26. (Amended) A sampler [with] for taking samples of a fluid, said sampler comprising an apparatus for generating a fluid flow, said apparatus comprising:

- a displacement pump

-- with at least one flow vessel of deformable lumen, which serves to conduct a fluid,

-- with a pump drive for producing displacement motions of the flow vessel which deform the lumen and cause the fluid flow, and

-- with a support means for holding the flow vessel, wherein

[---] the flow vessel [being] is compressed by the pump drive in operation temporarily and in sections and forced against the support means such that the support means is elastically strained; and

- a measuring arrangement responsive to the displacement motions performed by the flow vessel,

-- with a strain sensor [for] sensing a strain of the support means and providing a sensor signal representative of the displacement motions performed by the flow vessel, and

-- with evaluation electronics for the sensor signal.

27. (Amended) The sampler [Sampler] as claimed in claim 26, wherein the evaluation electronics are [being] operable to derive from the sensor signal a flow rate estimate representative of an instantaneous volume flow rate of the fluid.

28. (Amended) The sampler [Sampler] as claimed in claim 26, wherein the evaluation electronics are [being] operable to derive from the sensor signal a first measurement signal representative of a frequency of the displacement motions.

29. (Amended) The sampler [Sampler] as claimed in claim 26, wherein the evaluation electronics are [being] operable to derive from the sensor signal a volume estimate representative of a totalized volume of fluid delivered.

30. (Amended) The sampler [Sampler] as claimed in claim 26, wherein the evaluation electronics are [being] operable to derive from the sensor signal a status signal representative of a current operational status of the displacement pump.

31. (Amended) The sampler [Sampler] as claimed in claim 26, wherein the pump drive is a rotary pump drive.

32. (Amended) The sampler [Sampler] as claimed in claim 26, wherein the pump drive is a linear pump drive.

33. (Amended) The sampler [Sampler] as claimed in claim 26, wherein said sampler is a mobile sampler.

34. (Amended) The sampler [Sampler] as claimed in claim 26, wherein said sampler is a portable sampler.

35. (Amended) A method [Method] of monitoring an apparatus serving to generate a fluid flow, the apparatus [and] comprising: [-] a displacement pump, [--] with at least one flow vessel of deformable lumen, which serves to conduct a fluid, [--] with a pump drive for producing displacement motions of the flow vessel which deform the lumen and cause the fluid flow, [--] with a drive motor for the pump drive, and [--] with a support means for holding the flow vessel; and [-] a measuring arrangement responsive to the displacement motions of the flow vessel and comprising a pressure sensor for sensing a static pressure in the fluid, said method comprising the steps of:

- causing [drive motions of the drive motor for producing the] displacement motions of the flow vessel for taking a fluid;

- sensing the pressure [with the pressure sensor for] and generating a sensor signal representative of [the] said displacement motions; and

- deriving from the sensor signal a status signal signaling a current operational status of the apparatus.

36. (Amended) A method [Method] of monitoring a sampler with an apparatus serving to generate a fluid flow, [said] the apparatus comprising: [-] a displacement pump, [--]

with at least one flow vessel of deformable lumen, which serves to conduct a fluid, [--] with a pump drive for producing displacement motions of the flow vessel which deform the lumen and cause the fluid flow, [--] with a drive motor for the pump drive, and [--] with a support means for holding the flow vessel; and [-] a measuring arrangement responsive to the displacement motions of the flow vessel and comprising a pressure sensor [for] sensing a static pressure in the fluid, said method comprising the steps of:

- causing [drive motions of the drive motor for producing the] displacement motions of the flow vessel <u>for taking the fluid</u>;

- sensing the pressure [with the pressure sensor for] <u>and</u> generating a sensor signal representative of [the] <u>said</u> displacement motions; and

- deriving from the sensor signal a status signal signaling a current operational status of [the apparatus] <u>said sampler to be monitored</u>.